

REMARKS/ARGUMENTS

The present amendment is submitted in an earnest effort to advance the prosecution of this application to issue. In the Office Action of August 18, 2004, two of the three bases upon which the claims were rejected rely on newly cited references; the remaining rejection relies on a re-interpretation of a previously cited reference in view of newly presented materials. It respectfully submitted that placing the application under final rejection was premature. Accordingly, reconsideration and withdrawal of the finality of the rejection, entry of this amendment, and reconsideration of the pending claims is respectfully requested.

Claims 1, 7 and 13 stand rejected under 35 U.S.C. 103(a) as unpatentable over EP 0546 235 ("EP '235") or EP '235 in combination with newly cited Nadaud et al. (U.S. Pat. No. 5,567,426). Additionally, claims 1 and 13 stand rejected under 35 U.S.C. §103(a) as unpatentable over EP '235 in view of newly cited Grollier et al. (U.S. Pat. No. 4,488,564).

The subject invention is directed to a method for conditioning hair by treating the hair with a blend of different types of oily components (i.e., glyceride fatty ester and hydrocarbon oil in specified amounts). In contrast, EP '235 is directed to a method of treating the scalp to stimulate hair re-growth. Pursuant to the subject invention it was found that by combining a glyceride fatty ester with light mineral oil having a very low viscosity (i.e., from 0.0001 to 0.5 Pa.s at 25° to 30°C) and/or other low viscosity hydrocarbon oils having a viscosity within this range, hair oils having improved fiber penetration as well as good sensory attributes, for example, a less greasy feel, can be produced. There is nothing in EP '235 that discloses or suggests the use of the claimed

combination of oily components as a hair oil or the sensory or fiber penetration benefits afforded by such a hair oil.

Applicants respectfully disagree with the position set forth in the Office Action of August 18, 2004, that paraffin oil, as described by EP '235 is implicitly a light mineral oil meeting the viscosity requirements of the subject claims. Paraffin oil is referred to in EP '235 as "paraffin oil (vaseline oil, liquid paraffin)".¹ The entry in Grant & Hackh's Chemical dictionary, Fifth Edition, 1987 for paraffin oil is found under the entry for paraffin. It reads: "**p.oil** Petrolatum." The entry for "petrolatum" reads: "Petroleum jelly, Vaseline, paraffin ointment, cosmolin, fossolin, adeps mineral is, yellow petrolatum. A purified mixture of semisolid hydrocarbons from petroleum; a yellow jelly, d. 0.82-0.88, m. 38-60, soluble in alcohol or chloroform an ointment base, lubricant cleanser, rust preventative, and leather dressing (USP, BP)...". Thus, petrolatum and vaseline are generally understood to be relatively thick, jelly-like materials.²

The term "mineral oil" can read on petroleum products that represent both high and low viscosity hydrocarbon fractions. Given the reference in EP '235 to "paraffin oil (vaseline oil, liquid paraffin)", it does not follow that one of ordinary skill in the art would understand the material being described to be a low viscosity mineral oil having the viscosity requirements of the subject claims (i.e., from 0.0001 to 0.5 Pa.s at 25° to

¹ See the English translation of EP '235 at page 5, paragraph 2.

² In the Dictionary's entry for paraffin, one also finds reference to "liquid paraffin" as the BP (or British Pharmacopeia) name for mineral oil. Two descriptions of mineral oil are given under the Dictionary's description of "oil"; they read as follows:

(1) An o. composed mainly of hydrocarbons derived from inorganic matter; as petroleum.

Primeval biological processes are partly responsible for their formation.

(2) Liquid paraffin, (heavy) liquid petrolatum. Colorless, nonfluorescent, odorless, tasteless mixture of liquid hydrocarbons from petroleum. d 0.860-0.905. An internal lubricant (USP, BP).

30°C). Copies of those pages of the Dictionary that describe the terms “paraffin oil”, “petrolatum” and “mineral oil”, as well as the dictionary’s explanatory notes, are attached (see pp. xi- xiii, 407, 422 and 435).

Other compositional differences exist between the hair oil described by the subject claims and the hair restorer of EP ‘235. At the second full paragraph of page 3 of the English translation of EP ‘235 (all references herein to EP ‘235 being to the translation text) the citation states:

The hair restorer of the invention is characterized in that it is a mixture of castor oil, almond oil and olive oil, with these vegetable oils or fats preferably present in equal proportions in the mixture.... (Emphasis added.)

At the fifth full paragraph of page 3, the patent reinforces the point that the anti-dandruff composition therein described is required to contain a mixture of these three oils as its main component:

The main component of the preparation of the invention is a mixture of at least three vegetable oils or fats with greatly differing saponification and iodine numbers, namely castor oil, almond oil and olive oil. (Emphasis added.)

Beginning at the 3rd full paragraph of page 4, EP ‘235 goes on to note:

When used individually, cosmetic and medical applications are known for all three of the oils mentioned. This also applies to an additional vegetable oil, which in accordance with a further feature of the invention is advantageously added. The oil in question is coconut oil....

If, as is preferably provided by the invention, the vegetable oils are present in the mixture in equal proportions, their characteristics come to maximally balanced effect and give optimum results for the types of oil used.

At page 5, beginning at the third full paragraph, EP '235 references the use of additional substances as follows:

Finally, additional substances can also be added to the mixture of vegetable oils described above. These are preferably glycerol (propanetriol) and paraffin oil (vaseline oil, liquid paraffin). These two substances can each be added alone, but preferably they are both present in the preferred variant of the hair restorer of the invention. Due to its hygroscopic nature glycerol acts as a humectant, and paraffin oil is used to dilute the active substances contained in the vegetable oils.

In the single Example provided in the citation, a mixture of 1/6 parts by volume each of castor oil, sweet almond oil, olive oil, coconut oil, glycerol (i.e., glycerine) and paraffin is described. Thus, castor oil, olive oil and glycerol constitute 50% by volume of the mixture collectively, with the combination of sweet almond oil and coconut oil constituting 33.3 % by volume of the mixture, and paraffin constituting 16.7% by volume of the mixture. Given the combined amount of castor oil, olive oil and glycerol, it is apparent that the mixture contains substantially less than the 60% to 80% by weight, based on total weight, of a first oily component (i.e., coconut oil, sunflower oil, almond oil, and mixtures thereof) as required by claims 1 and 7 of the subject application.

At page 7, lines 3 to 13, the subject application notes that optional ingredients including, for example, polyols such as glycerine, may be present in the subject hair oils. The application goes on to state that: "Generally these optional ingredients are included individually at a level of up to about 5% by weight of the total hair oil." In view of this disclosure, the "consisting essentially of" language of the claims would be reasonably expected to exclude the use of glycerine at a level of 16.7% by volume (as in the Example of EP '235) from pending claims 1 and 7, as well as claim 13 (which

claim has been amended to further specify that if glycerine is present in the hair oil, it is present in an amount up to about 5% by weight).

Nadaud et al. is directed to a cosmetic composition in the form of a gelled triple water/silicone oil/water emulsion. As column 2, lines 8 to 16 these triple emulsions are described as follows:

The gelled triple water/silicone oil/water emulsion according to the invention is essentially characterized in that it comprises (A) a gelled, continuous, external aqueous phase which comprises at least one fatty-chain gelling agent of the C₃-C₆ monoethylenic carboxylic acid or anhydride/fatty-chain acrylic ester copolymer type; and (B) a silicone-containing fatty phase comprising at least one silicone oil and a silicone-containing emulsifier, forming the primary W/O emulsion with an aqueous phase.

In each of the Examples, the emulsions therein described are predominantly composed of water; such compositions are vastly different than those disclosed by EP '235. To the extent that Nadaud et al. discloses the use of vegetable oils, it is in the context of a "laundry list" of numerous oils that might be included in the silicone-containing fatty phase of the triple emulsions therein described. Given the very great compositional differences, it is respectfully submitted that one skilled in the art reading EP '235 would not be motivated to combine this citation with Naduad et al. Even if combined, the combination would not disclose or suggest the compositions described by the subject claims.

In the Office Action of August 18, 2004 it is further argued that "It would have been obvious to one of ordinary skill in the art at the time the invention was made and look to the teachings of Naduad et al and substitute EP's castor oil for instant sunflower oil [sic]. One would be motivated to do so since Naduad teaches the instant oils and castor oils are all vegetable oils." This argument ignores the explicit teaching of EP '235

that a specific combination of oils with greatly differing saponification and iodine numbers is required of the hair growth compositions therein described. At the top of page 4, EP '235 notes that the numerical range of saponification numbers extends from 170-180 for castor oil and from 190-195 for sunflower oil. Given these differences in saponification numbers, it is respectfully submitted that, if anything, EP '235 teaches away from the use of sunflower oil as a substitute for castor oil in its hair relaxer composition. Further, there is nothing in Naduad et al. that discloses the use of mineral or other hydrocarbon oils having the viscosity requirements of the subject claims.

Grollier et al is directed to a composition that combines cationic products and oils in one and the same composition to produce foaming or foamable oily compositions consisting of a single liquid phase. The compositions are described at column 2, lines 6 to 20 as follows:

The foaming oily composition which consists of a single liquid phase.... is essentially characterised in that it consists of at least one oily compound which is liquid at ambient temperature (a temperature not exceeding 25°C.), an oil-soluble surface-active compound, a cationic product and a small amount of water.

Preferably, the composition contains 5 to 85% of the oily compound, 15-95% of the oil soluble surface-active component, 0.05 to 10% of cationic product and 0.1-5% of water.

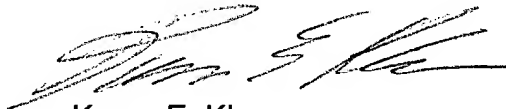
In contrast to the hair oils described by the subject claims, the compositions disclosed by Grollier et al. are foaming or foamable products that are required to contain from 15 to 99% of an oil soluble surface-active compound.³ The compositions are

³ To correct a misinterpretation of Example 1 set forth in the August 18th Office Action, it is noted that the composition described by Example 1 contains 15 g of Texapon WW (an oil soluble surface-active compound), 25 g of vaseline oil, 3 g of an aqueous solution of Polymer P1, and a sufficient amount of olive oil to make up the balance of a 100 g composition (i.e., 63g). Thus, vaseline oil is present in Example 1 in an amount of 25% by weight, not 17.5% by weight.

disclosed to have use as "shampoos or as rinse-off products to be applied before or after shampooing, colouring, bleaching or perming, or as bath foams or "shower gels". See column 11, lines 34 to 38. It is respectfully submitted that the "consisting essentially of" language of the subject claims excludes compositions having the levels of oil soluble surface active compound required by Grollier et al. Moreover, there is nothing in Grollier et al. that discloses or suggests the use of a combination of first and second oily components as set forth in the subject claims as a hair oil, or the sensory or fiber penetration benefits thereof.

In view of the foregoing it is respectfully submitted that the invention as described by the subject claims is neither disclosed nor rendered obvious by EP '235, EP '235 in combination with Nadaud et al., or Grollier et al. Accordingly, reconsideration and allowance of the claims as hereby amended, is respectfully requested.

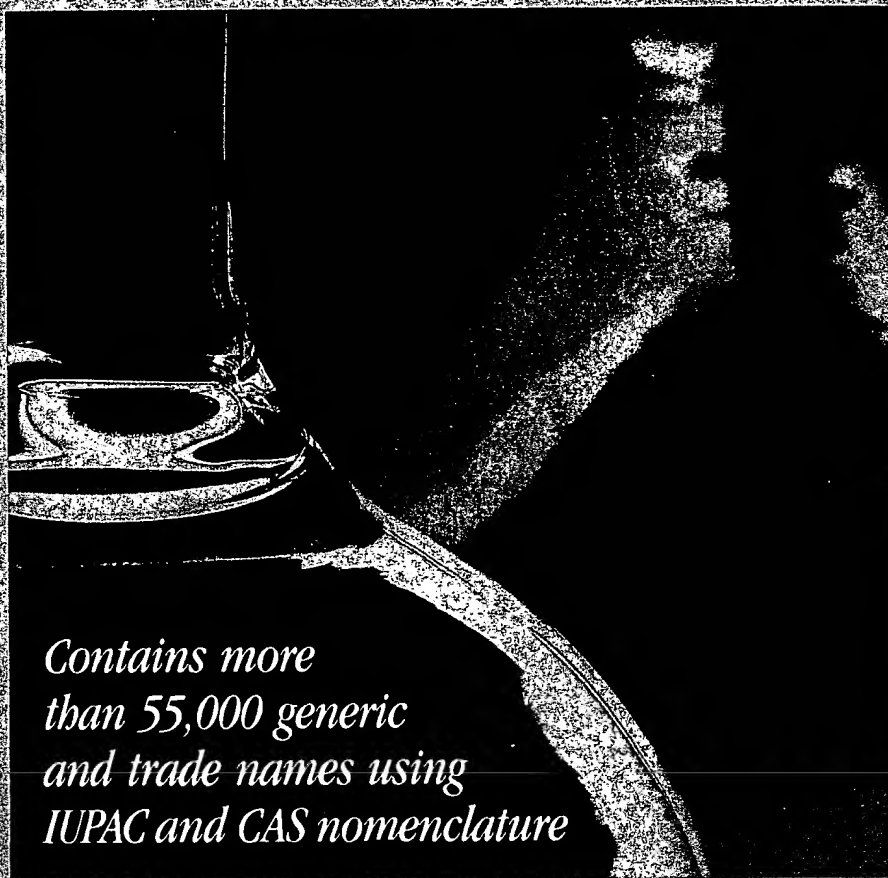
Respectfully submitted,



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Chemical Dictionary	1

lor, odour

ole in water;

ol*.
lene,

(2)
iece that
gens ~
increase
surfaces
stereoscopic

isms. Cf.

rberin.
erceptible
(eugenol),
l (citronella),
, (7) ethereal
rpentine),
i), (12)
arctic
ric acid), (17)
imniacal
1).

burnt ~
mphorous
See (16).

lor
eal ~ A
5). fishy ~
of flowers
See (5).
c ~ See
~ The o. of
embling rosin
ices, like
t. tarry ~

ory. Odors
as, in some
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as shown in
o., measured
r paper,

E
ORS
of air

14

odor, odour

exposing it to air, and comparing its o. after certain time intervals. Some of the most persistent odors, in decreasing order of permanence, are: patchouli oil, sandalwood oil, cinnamon oil, cassia oil, citronella oil, organum oil, thyme oil, neroli oil. o. theory Several theories exist, none of which are proven.

odorator An atomizer or nebulizer for diffusing liquid perfumes.

odoriferous Giving off odor; fragrant.

odorimetry Olfactometry. The measurement of the intensity and permanence of odors.

odorometer An apparatus for measuring the intensity of odors and stench for industrial purposes.

odorous Having an odor. o. principle A terpene, essential oil, or balsam.

oe-, 0- See also words beginning with e-.

oenanthal Heptanal*.

oenanthe Five-finger root, water dropwort, dead tongue. The dried herb of *O. crocata*, a highly poisonous umbelliferous plant.

oenanthic acid Heptanoic acid*.

oenanthotoxin $C_{17}H_{22}O_2 = 258.4$. A conjugated trienediynes alcohol, m. 87. A convulsant poison in *Oenanthe crocata* (Umbelliferae), W. Europe.

oenanthyl The hexyl* radical.

oenology The study of wine.

oenotannin A tannin in wine.

Oersted, Hans Christian (1777-1851) Danish physicist who discovered electromagnetism (1819) by passing a current of electricity through a wire in the same plane as a suspended magnetic needle.

oersted Abbrev. Oe; the cgs system unit of magnetic field strength. 1 Oe = 79.58 A/m (the SI equivalent).

oerstedite Hydrated zircon containing titanium dioxide.

oestradiol Estradiol.

oestrane Estrane.

oestrin Estrone.

oestriol Estriol.

oestrone Estrone.

official Pertaining to or listed in a pharmacopoeia.

official (1) For sale in an apothecary shop or drugstore. (2) Official.

offset printing See lithography.

O.G. Abbreviation for original gravity.

Ohm, Georg Simon (1787-1854) German physicist. O's law $I = E/R$. The strength of an unvarying electric current I is directly proportional to the electromotive force E , and inversely proportional to the resistance R of the circuit concerned.

ohm* Ω . The SI system unit of electric resistance; a primary practical unit of electricity. Equal to the resistance between 2 points of a conductor when a potential difference of 1 V produces a current of 1 A. 1 ohm = 10^9 emu (or abohm) = 1.11265×10^{-12} esu (or statohm). international ~ Pre-SI unit, now obsolete. 1 mean international o. = 1.00049 ohms. 1 U.S. international o. = 1.000495 ohms. mega ~ A million ohms. micro ~ A millionth of an ohm. reciprocal ~ Mho, ohm^{-1} . A unit of electrical conductance; the reciprocal of resistance. true ~ The resistance of a column of mercury 106.25 cm long at 0°C, of 1 mm² cross section; experimentally determined (10^9 emu).

ohm⁻¹ See reciprocal ohm under ohm.

ohmmeter A combined ohm- and amperemeter.

ohmmeter An instrument to measure electric resistance in ohms.

ohmoil A mineral oil with agerite (aldol-1-naphthylamine) to

407

oil

prevent decrease in electrical resistance on prolonged heating.

oiazines Orthodiazines. A group of heterocyclic compounds having 2 nitrogens in the *ortho* position; as, pyridazine. Cf. miazines.

-oic acid* Suffix indicating a carboxylic acid; as, benzoic acid.

-oid Suffix indicating resemblance or likeness, as, alkaloid.

oil (1) A liquid not miscible with water, generally combustible, and soluble in ether:

- a. Fixed oils—fatty substances of vegetable and animal organisms—contain esters (usually glycerol esters) of fatty acids.
- b. Volatile or essential oils—odorous principles of vegetable organisms—contain terpenes, camphors, and related compounds.
- c. Mineral oils, fuel oils, and lubricants—hydrocarbons derived from petroleum and its products.

(2) Natural oil, q.v. (below). aniline ~ Crude aniline.

acetone ~ See acetone oil. blown ~ A fixed o. oxidized by a current of air. boiled ~ See linseed oil. compounded ~

A mixture of essential oils for flower perfumes. crude ~

Petroleum. distilled ~ Essential o. drying ~ See drying

oil. edible ~ A fatty oil food or food accessory. essential

~ See essential oils. ethereal fruit ~ A mixture of

aromatic substances resembling fruit in odor. expressed ~

Fatty o. fatty ~ The nonvolatile oils of plants and animals;

mixtures of fatty acids and their esters (usually triglycerides),

subdivided into solid (mainly stearin), semisolid (mainly

palmitin), and liquid (mainly olein). Cf. fats. fish ~ See fish

oil. fixed ~ Fatty o. flower ~ See essential oil above.

liquid ~ A fatty o.; contains chiefly olein and is solidified by

hydrogenation. lubricating ~ A mineral lubrication o.

mineral ~ (1) An o. composed mainly of hydrocarbons

derived from inorganic matter; as petroleum. Primeval

biological processes are partly responsible for their formation.

(2) Liquid paraffin, (heavy) liquid petrolatum. Colorless,

nonfluorescent, odorless, tasteless mixture of liquid

hydrocarbons from petroleum. d. 0.860-0.905. An internal

lubricant (USP, BP). natural ~ A mixture of hydrocarbon

oils with their oxidation products; as, crude petroleum.

nondrying ~ See nondrying oil. quintessential ~ A highly

aromatic substance from a natural essential o.; as, anethole

from anise o. red ~ See red oil. residual ~ An o. that

does not distill in refining processes. semisolid ~ A fatty

o., m. ca. 20, consisting chiefly of palmitin. solid ~ A fat

that consists chiefly of stearin. stand ~ A drying o. which

has been polymerized, i.e., thickened by heating in an inert

atmosphere, without addition of a drier. straight-cut ~ A

mineral o. fraction having a relatively small difference

between the initial and final boiling points. synthetic drying

~ SDO. An amber, viscous liquid which polymerizes on

drying to a hard, chemically resistant, protective coating. tall

~ See tall oil. volatile ~ Essential oil.

o. equivalent See fuel equivalence. o. of absinthe

Wormwood o. o. of ajawa Ajowan o. o. of albahaca Tolu

o. o. of almond artificial ~ Benzaldehyde*. o. analysis

The identification and evaluation of an o. in terms of moisture

content, foots content, color, specific gravity, boiling point,

optical rotation, refraction, congealing or melting point, flash

point, solubility, unsaponifiable matter, saponification value,

ester value, iodine value, acid value. o. of anthos Rosemary

o. o. of ants 2-Furaldehyde*. o. of apple Pentyl valerate.

o. of arachis Peanut o. o. of aspic Spike o. o. of badian

Star anise o. o. of bananas Pentyl acetate. o. bath A metal

container filled with o. (rapeseed o.); used to heat glass

apparatus to 100-200°C. o. of bay Laurel o. o. of bayberry

parabanic acid $\text{CO}\cdot\text{NH}\cdot\text{CO}\cdot\text{NH}\cdot\text{CO} = 114.1$. Oxalylurea,

imidazolidinetrione, oxalic acid ureid. Colorless plates, m.243 (decomp.), soluble in water. **dimethyl** \sim Cholestrophane.

parabittuminous Describing a good caking gas-coal.

parabola A plane curve, each point of which is equidistant from a straight line (axis) and a central point (focus). It resembles a circle at some points, a straight line at others.

paraboloid The solid shape traced by a parabola when rotated about the axis containing the focus. **p. condenser** A spherical microscope mirror having an elongated focus.

parabuxin $\text{C}_{24}\text{H}_{48}\text{ON}_2 = 380.7$. An alkaloid in common garden box, *Buxus sempervirens* (Euphorbiaceae).

paracasein Casein digested with rennin.

paracellulose Cellulose from the parenchyma or pith of plants (obsolete).

Paracelsus (1493-1541) Philippus Aurelius Theophrastus Paracelsus Bombastus von Hohenheim. Swiss physician and alchemist, advocate of chemical as opposed to vegetable remedies. Cf. *iatrochemists*.

paracetamol EP, BP name for acetaminophen.

parachor $P = M\gamma^{1/4}/(D - d) = 0.78 \times V$, where V is the critical volume, γ surface tension, M molecular weight, and D and d densities of a compound in the liquid and vapor state, respectively, at the same temperature. A comparison of the P of liquids is equivalent to a comparison of their molecular volumes at temperatures of equal surface tension. P is an additive constant for saturated compounds and is used to determine chemical constitution.

Paracon Trademark for an oil- and heat-resistant synthetic rubber consisting of chain esters of sebacic or succinic acid and ethylene or propylene glycols.

paraconic acid $\text{O}\cdot\text{CH}_2\cdot\text{CH}(\text{COOH})\cdot\text{CH}_2\cdot\text{CO} = 130.1$.

Itmalic acid γ -lactone, tetrahydro-5-oxo-3-furancarboxylic acid. Colorless crystals, m.58. Cf. *citraconic acid*. **dimethyl** \sim Terebic acid. **phenyl** \sim See *phenylparaconic acid*.

paraconine $\text{C}_6\text{H}_{15}\text{N} = 125.2$. An alkaloid obtained by heating butyraldehyde with ammonia. Colorless liquid with stupefying odor, b.170.

paracoto The dried bark of an unidentified tree of N. Bolivia; a substitute for *coto* bark, q.v.

paracotoin $\text{C}_{12}\text{H}_8\text{O}_4 = 216.2$. An active principle from paracoto. Yellow crystals, m.150.

paracyanogen $(\text{CN})_5 = 130.1$. (1) An insoluble solid, sublimates if heated. (2) More correctly, the water-insoluble polymer, $(\text{CN})_n$, of unknown molecular weight. Brown powder converted into cyanogen when heated above 860° in absence of air. Produced by prolonged pyrolysis of cyanogen at 300° .

paradiazine Pyrazine*.

paradimethylaminobenzaldehyde $\text{C}_6\text{H}_4(\text{CHO})\text{NMe}_2 = 149.2$. A reagent for indole, skatole, pyrrole.

paradioxybenzene Hydroquinone*.

paraffin (1) See *alkanes*. (2) Hard p. (BP). White wax, d.0.890, m.47-65, insoluble in water, soluble in organic solvents. P. is a mixture of hydrocarbons occurring native in ozocerite, peat, and bituminous coal, and is a constituent of petroleum from which it is distilled. Used in the manufacture of ointments (NF, BP), waxed paper, matches, lubricants, oil crayons; and for waterproofing wood and cork. (3) See *kerosine*. **liquid** \sim BP name for mineral oil. **white soft** \sim , **yellow soft** \sim BP names for petrolatum.

p. bath Molten paraffin. **p. oil** Petrolatum. **p. scale** A crude paraffin. **p. wax** Paraffin (2).

paraffins Alkanes*. **iso** \sim Aliphatic, saturated hydrocarbons containing one $-\text{CHMe}-$ group or a side

chain. **normal** \sim Aliphatic, saturated hydrocarbons containing only CH_3- and $-\text{CH}_2-$ groups.

paraffinum Paraffin.

paraform 1,3,5-Trioxane.

paraformaldehyde 1,3,5-Trioxane. Cf. *paraldehyde*.

parafuchsin $(\text{C}_6\text{H}_4\text{NH}_2)_2\text{C}(\text{OH})\text{C}_6\text{H}_4\cdot\text{NH}\cdot\text{HCl}$.

Pararosaniline chloride. A dye. Cf. *pararosaniline*.

paragenesis The passage of minerals through successive stages of chemical composition during the cooling of the earth's crust.

paraglobulin Fibr(in)oplastin. A globulin from blood serum and lymph.

paragonite $\text{Al}_3\text{NaH}_2\text{Si}_3\text{O}_{12}$. A mica-type *silica* mineral, q.v.

Paraguay tea Maté.

parahydrogen See *hydrogen* (2).

paralactic acid (S)-Lactic acid.

paralbumin A protein from ovarian cysts.

paraldehyde $(\text{O}\cdot\text{CH}\cdot\text{Me})_3 = 132.2$. 2,4,6-Trimethyl-1,3,5-trioxane. A polymer of acetaldehyde. Colorless liquid of pungent odor, d.0.992, m.11, b.128, soluble in water; a reagent for alkaloids and fuchsin, and a hypnotic and sedative (USP, EP, BP). Cf. *metalddehyde*, *aldol*.

paraldol $\text{C}_8\text{H}_{16}\text{O}_4 = 176.2$. The dimer of aldol, m.96.

parallax The apparent displacement of an object due to a change in the position of the observer, e.g., errors in buret meniscus readings.

parallel (1) Having the same direction, but separated by equal distances. (2) Describing electric connections such that like poles of a number of units are connected to one another. Cf. *series*.

parallelosterism The relationship between isomorphous groups and their chemical compositions or physical properties.

paralyser Paralyzer.

paralysol $\text{Me}\cdot\text{C}_6\text{H}_4\cdot\text{OK}$. A mixture of cresol and potassium cresolate. Colorless crystals, m.146, insoluble in water; an antiseptic.

paralyst Paralyzer.

paralyzant A substance that causes paralysis.

paralyzer (1) An agent that prevents a chemical reaction; a catalytic poison. (2) Paralyzant.

param $\text{N}:\text{C}\cdot\text{NHC}(\text{NH})\text{NH}_2 = 84.1$. Cyanoguanidine. A condensation product of cyanamide, formed at 150, m.204, soluble in water.

paramagnetic A substance that has magnetic properties stronger than those of air (as, iron); i.e., a magnetic permeability over 1. Cf. *diamagnetic*.

paramagnetism The property of being attracted by a magnet.

paramecium A genus of unicellular animals, or protozoans.

parameter A quantity that can be varied, but that is defined for a specific case; as, pressure.

paramisan sodium Aminosalicylate sodium.

paramorph A crystal that has undergone paramorphism.

paramorphine Thebaine.

paramorphism (1) The physical change of a mineral from one modification to another, without a change of chemical composition. (2) A rearrangement of molecular structure.

paramucic acid $\text{C}_6\text{H}_{10}\text{O}_8 = 210.1$. An isomer of mucic acid.

paramyelin $\text{C}_{35}\text{H}_{75}\text{O}_9\text{NP} = 721.0$. White solid from brain and nerve substance.

paranaphthalene Anthracene (obsolete).

paranitraniline $\text{NO}_2\cdot\text{C}_6\text{H}_4\cdot\text{NH}_2 = 138.1$. Yellow crystals, m.148, soluble in alcohol; a reagent and intermediate.

parapectic acid $\text{C}_{24}\text{H}_{34}\text{O}_{23} = 690.5$. An oxyacid produced from pectose by the ripening of fruits.

parapeptone Syntonin.

persorption The intimate and almost molecular mixture of a gas and solid due to absorption. Cf. *sorption*.

Persoz P., Jean François (1805-1869) French technical chemist. **P.'s solution** 10 g zinc chloride, 10 mL water, 2 g zinc oxide; dissolves silk but not wool.

Perspex Trademark for a transparent polymerized methyl methacrylate plastic; made from acetone, methyl alcohol, hydrogen cyanide, and sulfuric acid. It is light in weight, a good dielectric, and can "pipe" light round bends.

perstoff Diphosgene.

persulfate A salt derived from per(oxodi)sulfuric acid, which contains the radical $S_2O_8^{2-}$; made by the electrolysis of sulfate solutions.

persulfide A sulfide containing more S than is required by the normal valency of the element; as, Na_2S_2 .

persulfuric acid Peroxodisulfuric acid*.

perthio The radical $=S=S$.

perthiocarbonates M_2CS_4 . Salts formed from a solution of carbon disulfide in alkali disulfides.

pertusarene $C_{60}H_{100} = 821.5$. A solid hydrocarbon from the lichen *Pertusaria communis*.

pertussis vaccine A sterile suspension of killed p. bacilli in normal saline. An immunizing agent for whooping cough (USP, EP, BP).

Peru P. apple Stramonium. P. balsam Indian balsam. A reddish-brown balsam from *Myroxylon (Toluifera) pereirae* (Leguminosae), tropical America; a local irritant (USP).

peruol Benzyl benzoate*.

peruscabin Benzyl benzoate*.

Peruvian P. balsam Peru balsam. P. bark Cinchona.

peruvin Cinnamyl alcohol*.

peruviol Nerolidol.

pervaporation The evaporation of a liquid through a dialyzing membrane; as, parchment.

pervesterol A sterol, q.v. (*sterols*), isolated from the fat of algae.

pervious Allowing the passage of fluids.

perylene* $C_{10}H_6 \cdot C_{10}H_6 = 252.3$. 1,1',8,8'-Binaphthylene*. m. 274.

peryllartine $C_6H_8 \cdot CMe \cdot CH_2 \cdot CHNOH = 165.2$. Perillaldehyde- α -antialdoxime; 2.0 times sweeter than sucrose.

persary Pharmaceutical term for a medicated solid body for vaginal insertion.

pesticide General term for chemicals to combat pests; thus, including *insecticides*, *rodenticides*, *fungicides*, *herbicides*, *weedicides*. The world loss of crops due to pests is estimated at about 35%. For ISO nomenclature, see the tables accompanying the specific pesticide types just given in *italics* above.

pestle A blunt, rounded instrument, for pounding drugs or chemicals in a mortar, or ores in a stamp mill.

PET Symbol for poly(ethylene terephthalate).

peta* Symbol: P; SI system prefix for a multiple of 10^{15} .

petalite $Li_2O \cdot Al_2O_3 \cdot 8SiO_2$. Found in S.W. Africa and used in ceramics to produce resistance to high, varying temperatures.

petalon The hypothetical disk-shaped nucleus of helium.

pethidine EP, BP name for meperidine. Cf.

Petit, Alexis Therèse (1791-1820) French physicist. Cf. *Dulong and Petit law*.

petitgrain p. oil An essential oil distilled from the leaves and fruits of *Citrus bigardia*. Yellow liquid, d. 0.887, insoluble in water. Used in perfumery to adulterate neroli oil; contains linalool, citrene, and esters. p. citronier oil The essential oil from the unripe fruits of *Citrus medica*, d. 0.869-0.878; contains citral and esters of linalool.

PETP* Symbol for poly(ethylene terephthalate).

petrichor An oil believed to be responsible for the odor of damp earth.

petri dish A flat, shallow, circular glass dish for bacterial cultures.

petrifaction Mineralization, silification. The process of changing organic matter into stonelike substances by the gradual infiltration and replacement of the tissues by mineral matter.

petrified wood Fossil wood that has been gradually changed into stone by the slow infiltration of silica, details of its structure being preserved.

petrochemical A chemical product derived from petroleum; e.g.: Chemical and hydrocarbon solvents, synthetic detergents, plastics and resins, agricultural chemicals (pesticides), ammonia and nitrogenous fertilizers, synthetic rubbers, synthetic fibers, glycerol, glycols, and other esters.

Petroff P. equation The coefficient of friction f of a shaft revolving in a lubricating oil of dynamic viscosity μ , at n rpm and p N/m² of projected area $= \pi^2 \mu n R / 230 p C$, where R is the shaft radius, and C the radial clearance. P. reagent A sulfonic acid of nonalkane hydrocarbons. A by-product of the refining of petroleum oils with fuming sulfuric acid; a catalyst in fat manufacture (Twitchell's method).

petrograd standard A measure of the volume of sawn softwood: 165 ft³ = 4.67 m³.

petrographical Pertaining to the description of rocks and stones.

petrography The study of rocks and stones as aggregates of minerals. Cf. *petrology*.

Petrohol Trademark for isopropyl alcohol synthesized by hydration of propene from petroleum cracking stills.

petrol U.K. usage for gasoline.

petrolate A general term for products derived from petroleum.

petrolatum Petroleum jelly, Vaseline, paraffin ointment, cosmolin, fossolin, adeps mineralis, yellow petrolatum. A purified mixture of semisolid hydrocarbons from petroleum; a yellow jelly, d. 0.82-0.88, m. 38-60, soluble in alcohol or chloroform; an ointment base, lubricant, cleanser, rust preventive, and leather dressing (USP, BP). heavy ~ Mineral oil (2). hydrophilic ~ A mixture of p. with cholesterol, octadecanol, and white wax; used in ointments. light ~ d. 0.830-0.870. liquid ~ Mineral oil (2). white ~ Albolene. A decolorized p. ointment base (USP). yellow ~ Petrolatum.

p. albumin White p. p. jelly Petrolatum. p. liquidum Mineral oil (2).

Petrolene (1) Trademark for malthene, the oily or soft constituents of bitumen, soluble in petroleum spirit. (2) (Not cap.) Asphalt.

petroleum (1) Mineral oil, rock oil, coal oil, earth oil, seneca oil, crude oil, naphtha. A native mixture of gaseous, liquid, and solid hydrocarbons. Thick, brown or yellow oil, obtained from wells, springs, and lakes, d. 0.78-0.97 (extreme limits 0.65-1.07); insoluble in water, soluble in organic solvents. (2) The fraction of crude p. distilling at 150-300°C. Classification:

A. Paraffin base: mainly C_nH_{2n+2} (C_4H_{10} to $C_{35}H_{72}$); small amounts of C_nH_{2n} ($C_{21}H_{42}$ to $C_{26}H_{52}$) and C_nH_{2n-x} . Sulfur occurs as thiophanes, $C_nH_{2n}S$.

B. Naphthene base (or asphalt base): mainly C_nH_{2n} (naphthenes and alkenes); moderate amounts of C_nH_{2n-x} , where x is 2, 4, 6, 8, etc., up to 20; also some aromatic hydrocarbons, little or no C_nH_{2n-2} .

Estimated world reserves, about 7×10^{11} bbl, of which about 55% is in the Middle East and 17% in the Western Hemisphere.

p. asphalt The residues from Trinidad p. p.

coke The residue from the distillation of p.; used in

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